

What is claimed is:

1. A semiconductor device comprising:

a plurality of inner leads extending around a semiconductor chip;

a thin sheet-shaped insulating member supporting said semiconductor chip and joined to an end portion of said respective inner leads;

a bonding wire for connecting surface electrodes of said semiconductor chip and said inner leads corresponding thereto;

a seal portion formed by resin-sealing said semiconductor chip, said wire and said insulating member; and

a plurality of outer leads linked to said inner leads and exposed from said seal portion,

wherein a length of a shorter side of a main surface of said semiconductor chip formed in a quadrilateral shape is twice or less than a distance from a tip of the inner leads arranged at the farthest location from a center line of the semiconductor chip in a plane direction, to said semiconductor chip.

2. A semiconductor device comprising:

a plurality of inner leads extending around a semiconductor chip;

a thin sheet-shaped insulating member supporting said semiconductor chip and joined to an end portion of said respective inner leads;

a bonding wire for connecting surface electrodes of said semiconductor chip and said inner leads corresponding thereto;

a seal portion formed by resin-sealing said semiconductor

chip, said wire and said insulating member; and

a plurality of outer leads linked to said inner leads and exposed from said seal portion,

wherein a length of a shorter side of a main surface of said semiconductor chip formed in a quadrilateral shape is longer than a distance from a tip of the inner leads arranged at the farthest location from a center line of the semiconductor chip in a plane direction, to said semiconductor chip, and is twice or less than this distance.

3. The semiconductor device according to claim 1,

wherein an arrangement pitch of said surface electrodes of said semiconductor chip is  $1/2$  or less than a minimum value of a tip pitch between said inner leads adjacent to each other.

4. The semiconductor device according to claim 1,

wherein said semiconductor device has a seal portion thereof of  $20\text{ mm} \times 20\text{ mm}$  or more in plane size and said outer leads of 176 or more.

5. The semiconductor device according to claim 1,

wherein said insulating member is a tape substrate comprising a tape base and an adhesive layer, and said tape base and said inner leads are joined to one another by said adhesive layer.

6. The semiconductor device according to claim 1,

wherein said insulating member is a glass-containing epoxy substrate, and said glass-containing epoxy substrate and said inner leads are joined to one another by an adhesive layer.

7. The semiconductor device according to claim 1,

wherein said insulating member is a ceramic substrate, and said ceramic substrate and said inner leads are jointed to one another by an adhesive layer.

8. The semiconductor device according to claim 1, wherein said semiconductor chip is mounted in a surface of an inner lead arrangement side of said insulating member.

9. The semiconductor device according to claim 1, wherein a metal sheet is fixed to a surface opposite to the surface of the inner lead arrangement side of said insulating member.

10. The semiconductor device according to claim 1, wherein said inner leads and said insulating member are joined by an adhesive layer, and said semiconductor chip is thicker than a total of said insulating member and said adhesive layer in thickness.

11. The semiconductor device according to claim 1, wherein said insulating member is a glass-containing epoxy substrate, and said glass-containing epoxy substrate and said inner leads are jointed by adhesive layers of a pressure sensitive adhesive double coated tape having the tape base, on both front and rear surfaces whose said adhesive layers are disposed.

12. The semiconductor device according to claim 1, wherein said insulating member is an glass-containing epoxy substrate which contains alumina particles, and said glass-containing epoxy substrate and said inner leads are joined by an adhesive layer.

13. The semiconductor device according to claim 1,

wherein a through-hole is formed in said insulating member, and mold resin is embedded in said through-hole.

14. The semiconductor device according to claim 1, wherein said inner leads and said insulating member are joined by an adhesive layer, and said adhesive layer is disposed throughout the entire of a surface of an inner lead arrangement side of said insulating member.

15. The semiconductor device according to claim 1, wherein said inner leads and said insulating member are joined by an adhesive layer, and said adhesive layer is disposed just on a lead joining portion of a surface of the inner lead arrangement side of said insulating member.

16. A semiconductor device comprising:  
a plurality of inner leads extending around a semiconductor chip;

a thin sheet-shaped insulating member supporting said semiconductor chip and joined to an end portion of said respective inner leads;

an adhesive layer for joining said inner leads and said insulating member;

a bonding wire for connecting surface electrodes of said semiconductor chip and said inner leads corresponding thereto;

a seal portion formed by resin-sealing said semiconductor chip, said wire and said insulating member; and

a plurality of outer leads linked to said inner leads and exposed from said seal portion.

17. The semiconductor device according to claim 16,

wherein said semiconductor chip is thicker than a total of said insulating member and said adhesive layer in thickness.

18. The semiconductor device according to claim 16, wherein said insulating member is a tape substrate comprising a tape base and an adhesive layer, and said tape base and said inner leads are joined by said adhesive layer.

19. The semiconductor device according to claim 16, wherein said insulating member is a glass-containing epoxy substrate, and said glass-containing epoxy substrate and said inner leads are joined by an adhesive layer.

20. The semiconductor device according to claim 16, wherein said insulating member is a glass-containing epoxy substrate, and said glass-containing epoxy substrate and said inner leads are joined by adhesive layers of a pressure sensitive adhesive double coated tape having a tape base, on both front and rear surfaces where the adhesive layers are disposed.

21. The semiconductor device according to claim 16, wherein said insulating member is a glass-containing epoxy substrate which contains alumina particles, and said glass-containing epoxy substrate and said inner leads are joined by an adhesive layer.

22. The semiconductor device according to claim 16, wherein a through-hole is formed in said insulating member, and mold resin is embedded in said through-hole.

23. The semiconductor device according to claim 16, wherein said adhesive layer is disposed throughout the entire of a surface of an inner lead arrangement side of said

insulating member.

24. The semiconductor device according to claim 16, wherein said adhesive layer is disposed only on a lead joining portion of a surface of an inner lead arrangement side of said insulating member.

25. A manufacturing method of a resin-sealing type semiconductor device comprising the steps of:

preparing a multi-link lead frame formed by linking in a line with a plurality of package areas, each of the package areas including a plurality of inner leads, a thin sheet-shaped insulating member joined to an end portion of each of said inner leads and capable of supporting a semiconductor chip;

mounting said semiconductor chip on said insulating member in each of said package area;

connecting surface electrodes of said semiconductor chips and said inner leads corresponding thereto by a wire;

forming a seal portion by resin-sealing said semiconductor chips, said wire, and said insulating member; and

separating a plurality of outer leads exposed from said seal portion, from a frame section of said lead frame.

26. A manufacturing method of a resin-sealing type semiconductor device comprising the steps of:

preparing a matrix frame formed by arranging a plurality of package areas in a matrix arrangement, each of the package areas including a plurality of inner leads, a thin sheet-shaped insulating member joined to an end portion of each of said inner leads and capable of supporting a semiconductor chip;

mounting said semiconductor chip on said insulating member in each of said package area;

connecting surface electrodes of said semiconductor chips and said inner leads corresponding thereto by a wire;

forming a seal portion by resin-sealing said semiconductor chips, said wire, and said insulating member; and

separating a plurality of outer leads exposed from said seal portion, from a frame section of said matrix frame.

27. The manufacturing method of a semiconductor device according to claim 25, further comprising a step of mounting said semiconductor chip on a surface of an inner lead arrangement side of said insulating member when said semiconductor chip is mounted on said insulating member.

28. The manufacturing method of a semiconductor device according to claim 25,

wherein said semiconductor chip is arranged and mounted such that a length of a shorter side of a main surface of said semiconductor chip formed in an quadrilateral shape is twice or less than a distance from a tip of the inner leads arranged at the farthest location from a center line of the semiconductor chip in a plane direction, to said semiconductor chip, when said semiconductor chip is mounted on said insulating member.

29. The manufacturing method of a semiconductor device according to claim 25, further comprising a step of being assembled by using said lead frame in which said inner leads and said insulating member are joined by an adhesive layer disposed throughout the entire of a surface of an inner lead

arrangement side of said insulating member.

30. The manufacturing method of a semiconductor device according to claim 25, further comprising a step of being assembled by using said lead frame in which said inner leads and said insulating member are joined by an adhesive layer disposed only on a lead joining portion of a surface of an inner lead arrangement side of said insulating member.